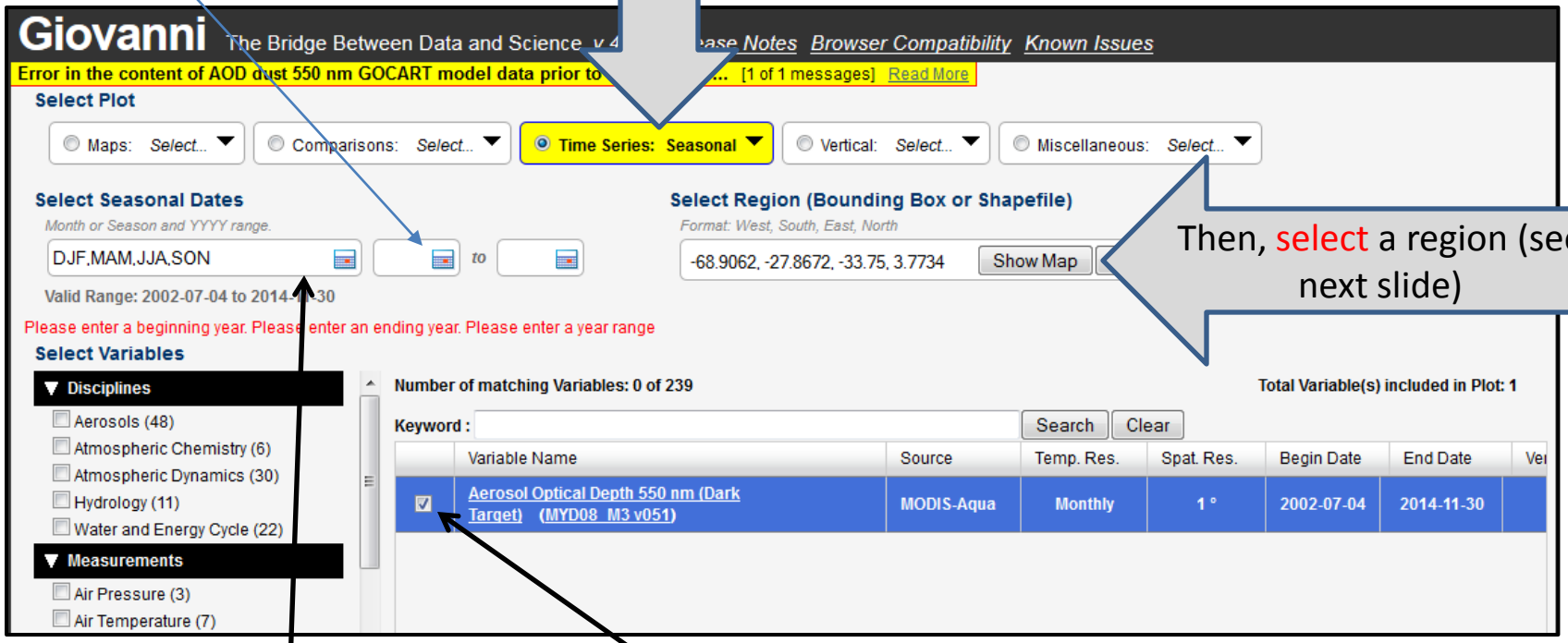
How to plot seasonal time-series with **Giovanni-4**

The following slides demonstrate how to plot seasonal time-series with Giovanni-4, including how to plot multiple seasonal time-series.

Setting up a seasonal time-series analysis:

Select the years for the time-series. In this example, the period chosen for the time-series is 2008 to 2012.

Select the "Seasonal" option from the Time Series plot menu



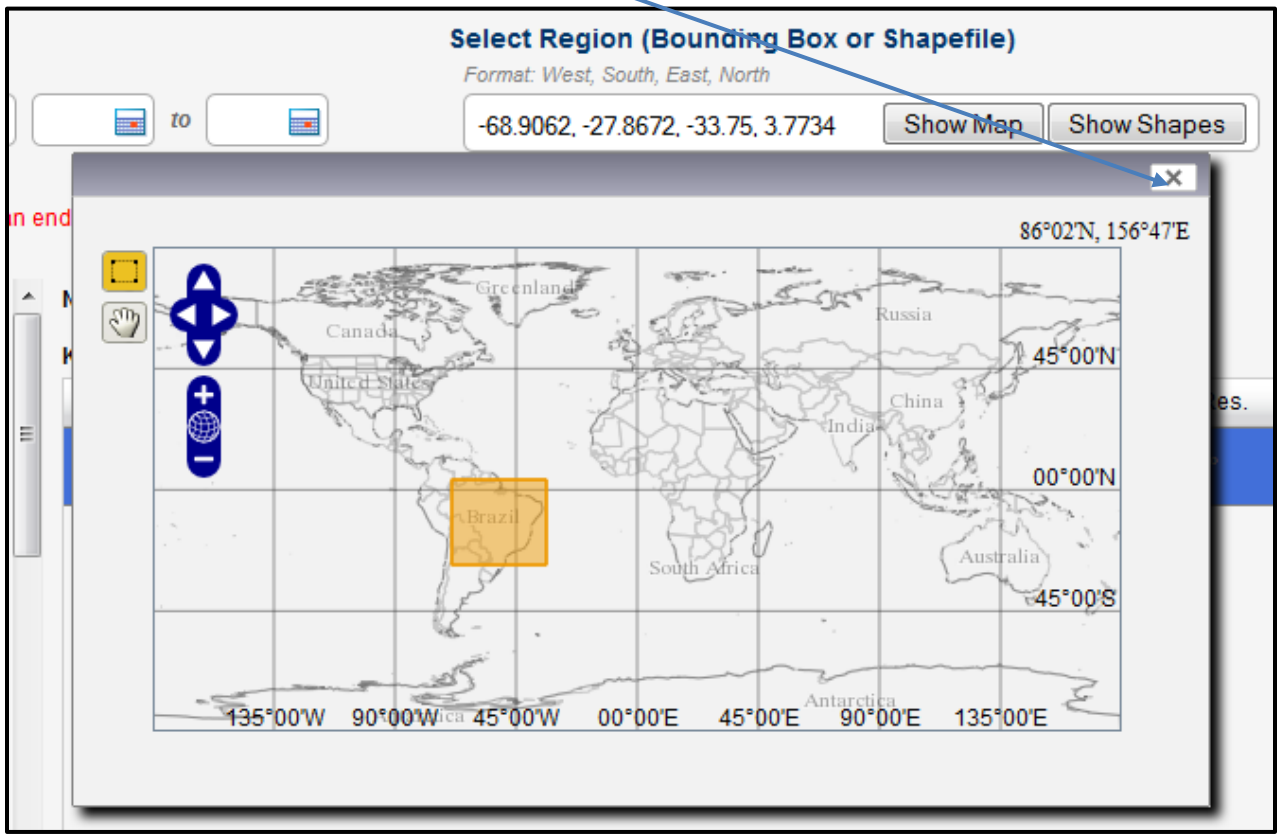
Then, select a region (see next slide)

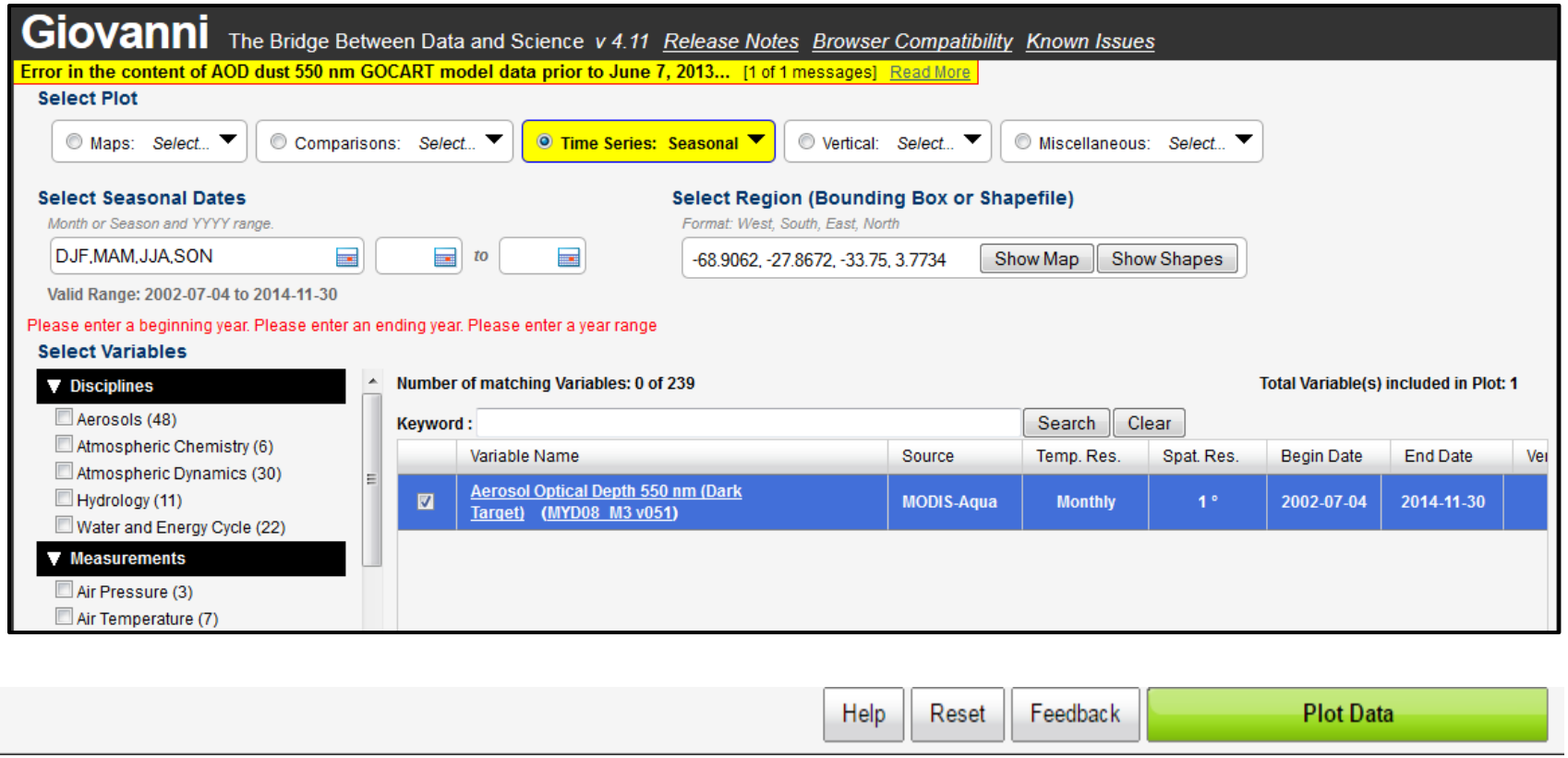
Select the seasons. In this case, all four (DJF, MAM, JJA, and SON) have been selected. Each month in the season is identified by its first letter.

Select a data product. In this case, MODIS-Aqua Aerosol Optical Depth (AOD) at 550 nm (Dark Target) is selected. Higher AOD values indicate increased aerosol concentrations in the atmosphere.

Selected Region

The region selected for this example is most of the nation of Brazil. Biomass burning, both natural and caused by agricultural activities, takes place here in the Amazon rain forest during certain seasons of the year. The seasonal time-series analysis should indicate in what seasons biomass burning is prevalent. Click the "x" in the right corner to exit and return to the main selection window.

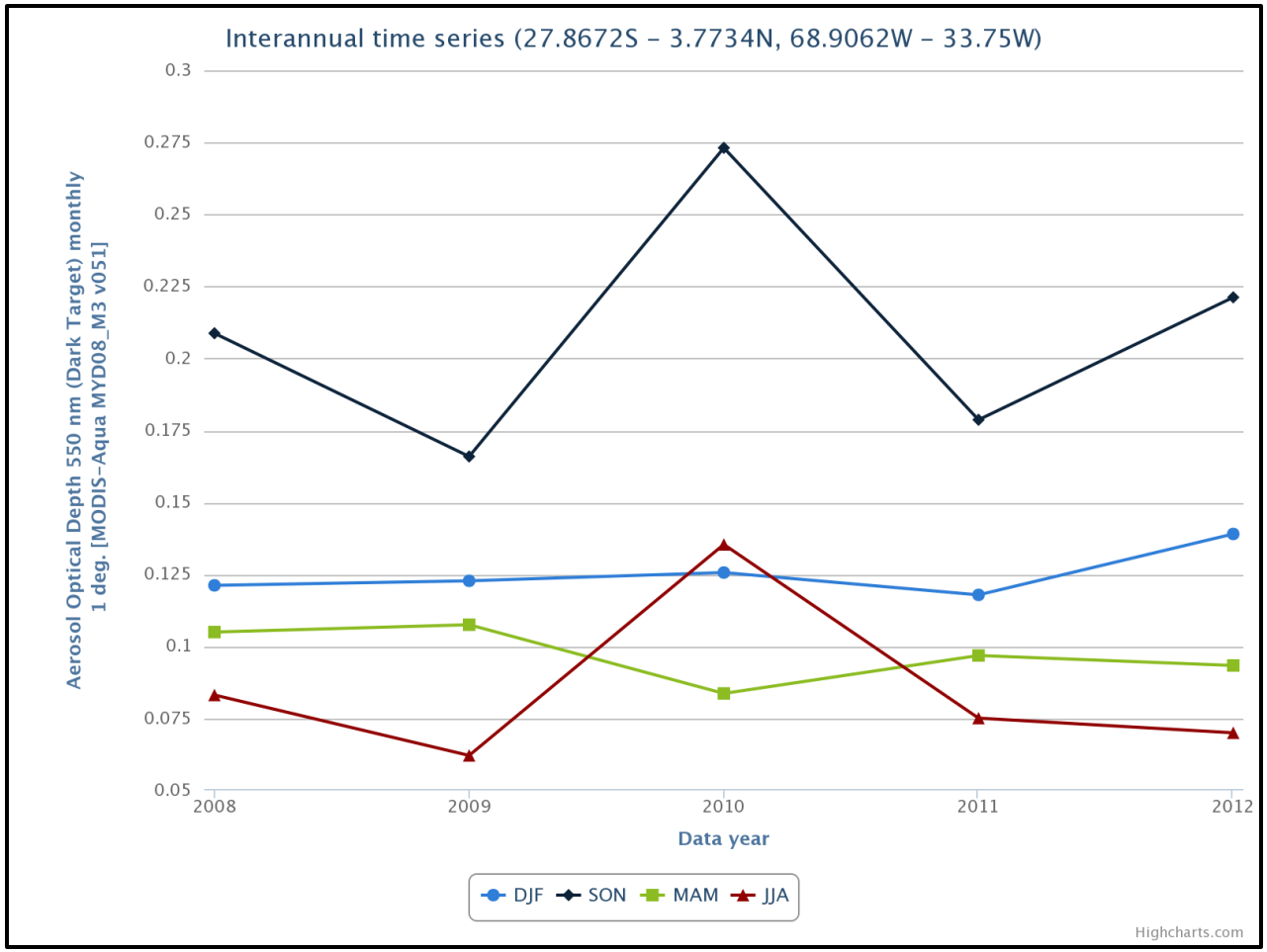




Click the green "Plot Data" button to plot the time series

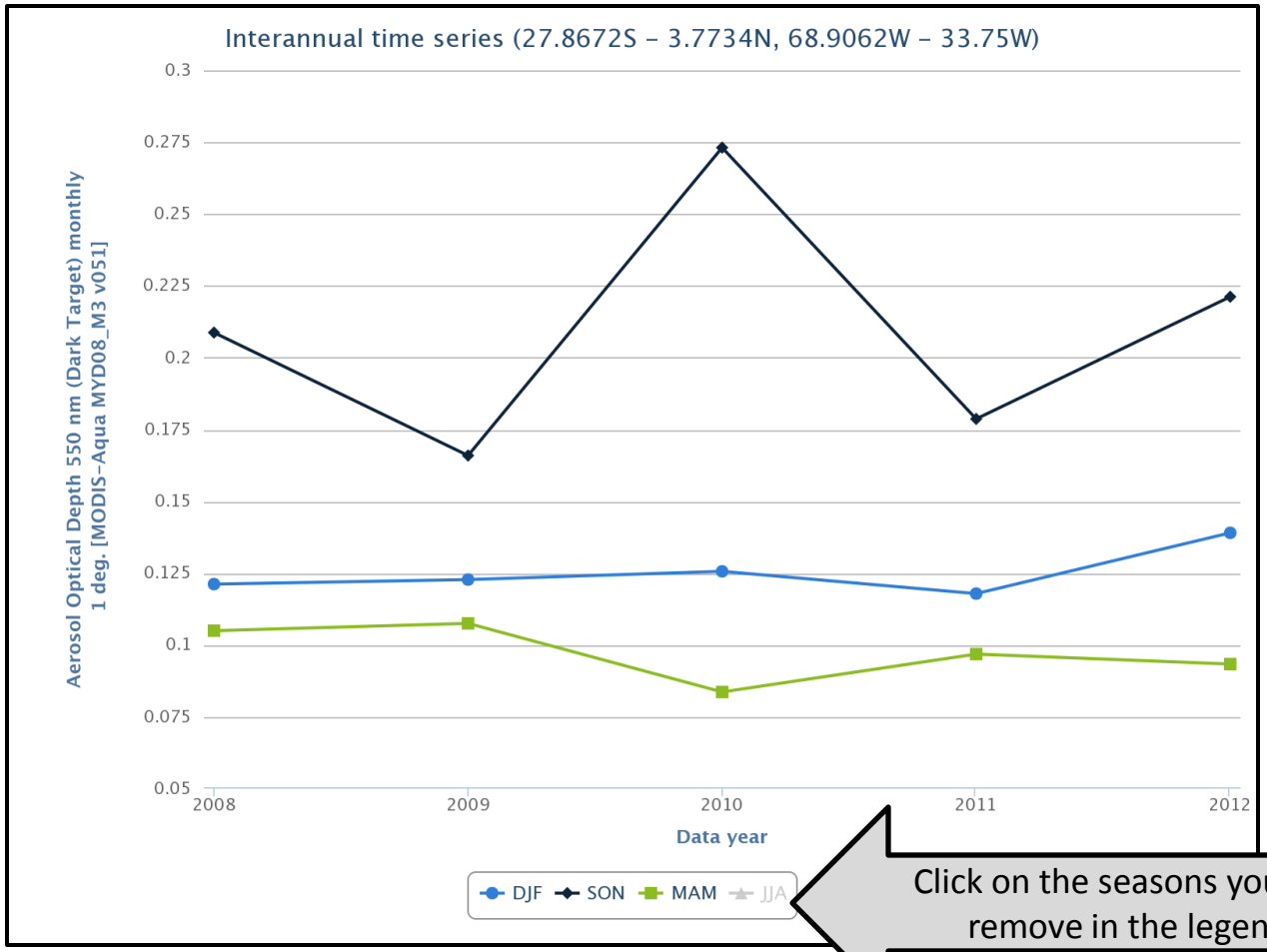
Result

Here is the seasonal time-series plot generated with the selections shown in the previous slides. Each season is shown in a different color. This plot indicates that the September-October-November (SON) season **has higher AOD values compared to the other seasons**, suggesting that the most of the biomass burning occurs in the fall.



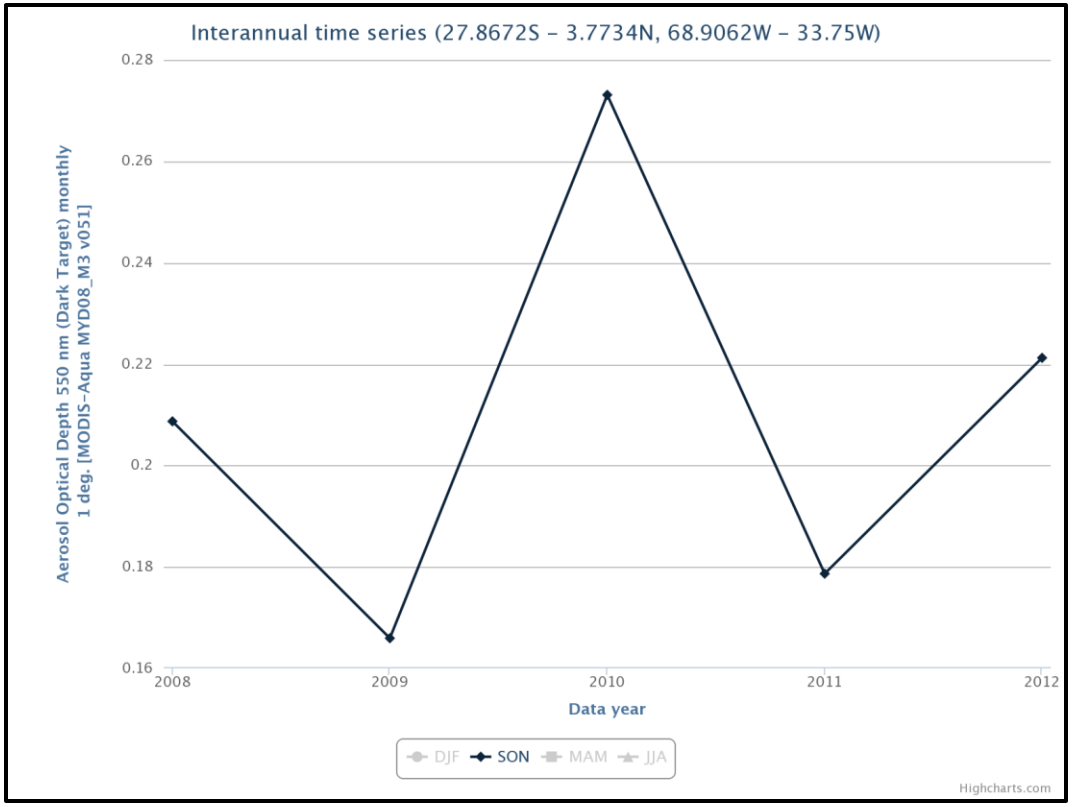
Modifying the Seasonal Time-Series Plot, part 1

By clicking on any of the seasons in the legend box (arrow), the display of the data for those seasons can be removed from the plot. In this case, the seasonal data for summer (June-July-August, JJA) were removed. Notice how the identifier at the bottom is now "grayed out". You can bring it back, however, by re-clicking on the identifiers



Modifying the Seasonal Time-Series Plot, part 2

Depending on the value range of the displayed data, the Y-axis may dynamically readjust to display the full range of the data. In this case, the Y-axis range has readjusted to respond to the removal of three seasons, leaving only autumn data (September-October-November, SON). Before, the Y-axis range was 0.05 to 0.3. Now it is 0.16 to 0.28.



End of demonstration